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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,232	12/21/2001	Ghulam Hasnain	10001379-1	8798

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EXAMINER

MONBLEAU, DAVIENNE N

ART UNIT PAPER NUMBER

2878

DATE MAILED: 03/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/026,232

Applicant(s)

HASNAIN ET AL.

Examiner

Davienne Monbleau

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 February 2004.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-6 and 9-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3-5, 9 and 10 is/are allowed.
- 6) ☒ Claim(s) 6 and 11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12/21/01 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

The amendment filed on 2/10/04 has been entered. Claims 3, 4, 6 and 11 have been amended. Claims 3-6 and 9-11 are pending.

Applicant's arguments regarding Claim 3 filed on 2/10/04 has been carefully considered and found persuasive. In particular, the Applicant argues on page 6 that the cited prior art of record (*Tan*) does not teach an edge-emitting laser (EEL) comprising a tunnel diode. *Tan* teaches using a tunnel diode in a vertical cavity surface-emitting laser (VCSEL) in order to avoid the step of etching the stack to expose a contact below the bottom mirror. This advantage outweighs the fact that using a tunnel diode also increases the operating voltage of the laser and power dissipation in the device. Thus, since EELs do not have the etching problem that VCSELs have, generally there is no motivation to combine a tunnel diode from a VCSEL into an EEL.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

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evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 6 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ibbetson et al. (US 6,515,313) in view of Yamada (US 5,693,965). Regarding both claims, *Ibbetson* teach in Figure 9A an optical semiconductor device comprising a plurality of semiconductor layers including a n-p junction between an n-type layer (86) and a p-type layer (84), an active layer (85) and a substrate (81). *Ibbetson* teach in Figure 8B that said active layer is grown such that the polarization field is directed from said n-layer to said p-layer. *Ibbetson* do not teach a tilted active layer. *Yamada* teaches in Figure 4 a semiconductor optical device comprising a tilted active layer (302c) with a planar substrate (301). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a tilted active layer in *Ibbetson*, as taught by *Yamada*, to narrow the spot size of the emitted laser beam.

Allowable Subject Matter

Claims 3-5, 9 and 10 are allowed.

Regarding Claims 4, 5, 9 and 10, a statement of reasons for allowance was included in the previous office action dated 12/11/03.

The following is an examiner's statement of reasons for allowance for Claim 3: the cited prior art of record does not teach or fairly suggest an optical semiconductor device comprising, along with the other claimed features, an edge-emitting laser and a reverse biased tunnel diode between an active layer and an n-type base layer.

The advantages of these features are in the specification on pages 1-3.

Response to Arguments

Applicant's arguments with respect to Claims 6 and 11 have been carefully considered but are found not persuasive. In particular, Applicant argues on page 6 that the cited prior art of record (*Yamada*) fails to teach an active layer that is grown at an angle to the underlying planar substrate and that the layer 302C referred to by the Examiner is in fact a cladding layer, not the active layer. However, *Yamada* teaches in column 3 lines 24-26 that the active layer comprises 3 layers (302a, 302b, and 302c) and further teaches in column 3 lines 37-40 separate cladding layers (303 and 313). 302b is not the cladding layer. Therefore, since the active layer comprises layer 302c, which is angled with respect to the substrate (301), the claim limitation is met.

Conclusion

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Davienne Monbleau whose telephone number is 571-272-1945. The examiner can normally be reached on Mon-Fri 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Davienne Monbleau

DNM


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